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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,997	03/29/2001	Brian M. Collins	219.39660X00	4076

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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER

PATEL, NIKETA I

ART UNIT	PAPER NUMBER
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2181

MAIL DATE	DELIVERY MODE
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05/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/819,997

Applicant(s)

COLLINS ET AL.

Examiner

Niketa I. Patel

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 2-15, 24-44, 47 and 49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 16-23, 45, 46 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Species III (Claims 1, 16-23, 45-46, 48) in the reply filed on 02/15/2007 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1 and 16-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 recites the limitation "a channel adapter" in line 14. There is insufficient antecedent basis for this limitation in the claim. Since "a channel adapter" is recited in line 1 of the claim, line 14 should recite "the channel adapter." Dependent claims 16-23 inherit the same deficiency.

Specification

5. The use of the trademark PCI has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 45-46 and 48 rejected under 35 U.S.C. 103(a) as being unpatentable over Micalizzi Jr. et al. U.S. Patent Number: 6,564,271 B2 (hereinafter "*Micalizzi*") and Avery U.S. Patent Number: US 6,704,831 B1 (hereinafter "*Avery*").

8. **Referring to claims 1 and 45**, *Micalizzi* teaches, in taking claim 1 as exemplary, a channel adapter comprising: a host interface [see figure 1, element 116], the host interface operatively connected to a memory by a local bus [see figure 1, elements 106, 114], the memory containing at least one completion queue [see figure 1, element 112] and at least one event queue [see figure 1, element 110]; a link interface, the link interface operatively connected to a network [see figure 1, connection to element 130]; a packet processing engine, the packet processing engine moving data between the host interface and the link interface [see figure 1, element 122]; and a completion queue engine, the completion queue engine processing completion requests from the packet processing engine by writing the appropriate at least one of the at least one completion queue and at least one event queue [see figure 2, element 202, 204 and column 4, lines 8-28.] *Micalizzi* does not set for the limitation of an address translation engine, the address translation engine translating a virtual address into a physical address of a translation protection table in the memory and wherein the packet processing engine is not impacted by any address

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translation functionality, completion queue accesses, or event queue accesses thereby significantly enhancing the performance of a channel adapter. *Avery* teaches a channel adapter with an address translation engine for translating a virtual address into a physical address without impacting packet processing engine [see *Avery* column 11, lines 50-65 and column 12, lines 15-20] in order to provide virtual to physical address mapping.

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the channel adapter of *Micalizzi* to have an address translation engine for translating a virtual address into a physical address. It is for this reason that one of ordinary skill in the art would have been motivated to implement an address translation engine in order to provide virtual to physical address mapping.

9. **Referring to claim 46**, the combination of *Micalizzi & Avery* teaches wherein the first interface comprises a host interface, the host interface operatively connected between the channel adapter and the memory by a local bus [see figure 1, element 116.]

10. **Referring to claim 48**, the combination of *Micalizzi & Avery* teaches wherein the second interface comprises a link interface, the link interface operatively connected between the channel adapter and a network [see figure 1, connection to element 130.]

Allowable Subject Matter

11. Claims 16-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

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Referring to claim 16, the prior art of record taken alone or in combination with other does not teach or fairly suggest the limitation of the address translation engine comprising an inbound request processor and a request completion processor, the inbound request processor receiving a request for address translation of the virtual address, the request completion processor sending a physical address of the memory associated with the virtual address and retrieved from the translation protection table to at least one of the packet processing engine and the completion queue engine in response to the request, in combination with other recited limitations.

Referring to claims 17-23, are indicated as allowable due to the dependency on claim 16.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (571) 272 4156. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272 4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner:
Niketa Patel

A handwritten signature in black ink, appearing to read "Niketa Patel", with a stylized flourish at the end.

05/05/2007